

19971204.ba v01_n812.bam.971204 v01_n813.bam.971204 v01_n814.bam.971204

>From ???@??? Thu Dec 04 03:00:31 1997
Message-Id: <199712040721.BAA07709@sco.theporch.com>
Date: Thu, 4 Dec 1997 01:21:10 CST
Subject: BOATANCHORS digest 1812

BOATANCHORS Digest 1812

Topics covered in this issue include:

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by "Doug Obenchain" <dobench@iquest.net>
- 2) Re: What are the 10-most hand tools you use?
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by Dick Dillman <ddillman@igc.apc.org>
- 4) Tube testers/substitution
by "W6WUH Larry" <rau@wco.com>
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by Bill Wilson <billo@internettpport.net>
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by "William C. Robbins" <billrobb@net-link.net>
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by Garey Barrell <k4oah@mindspring.com>
- 10) Ft Myers, Florida Hamfest ... Jan 3-4
by "Tom Bridgers" <Tarheel6@classic.msn.com>
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- 12) RE: FS: BA related items
by Bill Wilson <billo@internettpport.net>
- 13) About Tools
by "Robert Nickels" <ranickel@mwci.net>
- 14) Globe King on 160
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- 15) FS: Conrac A/V Receiver
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by Bob Roehrig <broehrig@admin.aurora.edu>
- 17) Re: The Twelve Tools Of Boatanchors
by Edward Zeranski <ejz@nosc.mil>
- 18) Re: ATT key ??
by "Neal McEwen, K5RW" <nmcewen@metronet.com>
- 19) Re: What are the 10-most hand tools you use?

by kb5ww@juno.com (George Folse)
20) Re: Tube tester advice
by Henry van Cleef <vancleef@netcom.com>
21) Re: Good Stuff From Fair Radio
by "Mark J. Blair" <mblair@gruumsh.irv.ca.us>
22) Meggers
by jackiv@juno.com (John M Iverson)
23) Re: Meggers
by Dean Davidson <ddavidso@metz.une.edu.au>
24) Re: Need help w/HP 410B VTVM
by jackiv@juno.com (John M Iverson)
25) Re: Need help w/HP 410B VTVM
by John Kolb <jlkolb@cts.com>
26) RE ATT Key
by John Ward <ke2st@frontiernet.net>

Date: Wed, 3 Dec 1997 18:55:06 -0500
From: "Doug Obenchain" <dobench@iquest.net>
To: <boatanchors@theporch.com>
Subject: Hallicrafters
Message-ID: <01bd0046\$e15fbae0\$9de45fcc@dobench.iquest.net>

Thank all very much for the quick replies to my original post about the "Hallicrafters Sky rider 32" I believe that this was my grandfathers radio who was a very active Ham during the thirty's and forties. I dug it out of my mothers garage this past weekend and remember hearing it once when I was a kid which 30+ years ago. So now it is restoration time.

Sorry for the HTML tags on the earlier post.

Doug Obenchain
Kokomo, Indiana, USA

Date: Thu, 04 Dec 1997 11:29:56 +1100
From: Morris Odell <morriso@vifp.monash.edu.au>
To: jeffreyh@hawaii.edu
Cc: boatanchors@sco.theporch.com
Subject: Re: What are the 10-most hand tools you use?
Message-ID: <3485F983.4259@vifp.monash.edu.au>

Jeffrey Herman wrote:

>

> I want to make sure my bench is as well equipped as your benches are!

An interesting question and one best answered by looking at the tools most often left lying around and having to be put back where they belong.

1. A selection of good screwdrivers both Phillips & slotted
2. A selection of end & side cutters
3. One of those special adjustable wire stripping tools
4. Solder sucker & braid
5. Artery forceps (a.k.a. hemostats in the USA)
6. A selection of Allen keys
7. A demountable or portable vice. I use the one I made in the machine shop course for eng. students 30 years ago
8. Large and small soldering irons
9. A selection of needle nose & other specialised pliers
10. A sharp knife (A Stanley knife if available in the USA)

Other useful items include socket wrenches, pencil torch, spanners, calipers, rules, flexible "grabbers" for things that fall into inaccessible places, a T-square, a Bristol wrench for the R390A, alignment tools, C-clamps, magnifying glass, rubber hammer, you could go on for hours.

After a few years at it you accumulate a set of tools that are right for you. I find browsing in tool shops very addictive.

73 de Morris VK3DOC

Date: Wed, 3 Dec 1997 16:28:31 -0800 (PST)
From: Dick Dillman <ddillman@igc.apc.org>
To: Ho4bart@aol.com, boatanchors@theporch.com
Subject: Re: ATT key ??
Message-ID: <2.2.16.19971203162726.3abfac8e@pop.igc.org>

At 02:54 AM 12/3/97 -0500, you wrote:

>a usual plain straightkey, but with the letters ATT on it.
>did ATT really have that much of a telegraph network that
>they would manufacture their own telegraph keys? and
>approx when?

The only place I have run into an AT&T key in its natural setting was at the shore terminal building of a trans-Pacific undersea cable here in northern California. My understanding was that it was primarily used on the test board, not for actual traffic.

Another key, that I always considered a "cable" key, was a double contact type - like a SPDT switch - that would reverse the polarity of the circuit rather than just opening and closing it. I'm sure that the key collectors will know the proper name and application for this type of key but I thought it was probably used on cable circuits.

Regards,

Dick

Dick Dillman
<ddillman@igc.apc.org>
WPE2VT W6AWO
Collector Of Heavy Metal:
Harleys, Willys and Radios Over 100lbs.

Date: Wed, 3 Dec 1997 16:37:05 -0800
From: "W6WUH Larry" <rau@wco.com>
To: <ornitz@tricon.net>
Cc: "boatanchors" <boatanchors@theporch.com>
Subject: Tube testers/substitution
Message-ID: <199712040038.QAA02595@shell.wco.com>

Barry...how can you be so right about tubetesters and still be so wrong about how important they are.? (He said tactfully.)

Everything you said about tube testers is right... except one.. anybody who works on tube gear, more than just a little, should have a good one like a hickock....tube substitution is the last step not the first step in seeing whether a circuit's operating conditions are too critical for a tube....

And how, pray tell , does one find these ' known good ' tubes to substitute with ?

Why, with a good tube tester of course !

New in the box doesn't translate into good anymore...not after 40 to 70 years on the shelf and who knows how much rough handling... loose bases, gas, broken elements, all need to be checked for,, before you stick a ' good ' tube in a radio.. be it new tube, a 'good pull' a used tube or whatever.

And when the tube that came out of the radio tests good...you may try

another for some hidden fault.. but it far far more likely that the fault is in the circuit itself, if the tube passes muster....

If, in fact, some good tubes work and some don't in a radio receiver for instance... as in an RF or IF stage.. it is a good bet that that stage is on the verge of oscillation...or running with incorrect voltage (s) like excessive B+ , or the wrong bias, or some kind of coupling introduced by improper lead dress....which finding the "magic" tube by substitution has only masked, not "cured " how could it ? Granted sometimes a manufacturer had made a far better version of a tube for some critical purpose...but that is a rare duck in a big pond.

There is also the risk of wrecking a perfectly good tube... or several with this 'shoot in the dark ' method...

I admit.. for transmitting tubes I often have no alternative.. but that is all the more reason to measure operating voltages before testing by the substitution method. and, the reason i keep used tube which are ok but not great on hand for initial testing of radio which have just undergone "surgery".

Larry

Date: Wed, 03 Dec 1997 17:03:53 -0800
From: Edward Zeranski <ejz@nosc.mil>
To: boatanchors@theporch.com
Subject: BA tools and sources
Message-ID: <3.0.1.32.19971203170353.006ab910@marlin.nosc.mil>

Saw the 'Favorite Tools ' thread and thought I add some stuff learned around our shop. Lots of things can get generic replacement but these are what always get replaced tool for tool as they have been a good price/performance value.

The Phillips drivers mentioned earlier, black grip Xcelite Tru-Tip series, are truly worth the search. We bought them because they last in production/field team environments but there is a BA reason... accurately machined hardened tips fit the screw so are less likely to slip and booger something up.

If possible get a good temp controlled soldering station. There are lots of tips available to fit most if not all build/repair situations. Weller has been a preformer for us, one of mine has been working with heavy use since 1985.

Wire strippers- Ideal 'T' strippers. Can't beat 'em for the money, we even strip optical breakout fibers with the things.

Soldering tweezers. These act like little heat sinks when soldering/desoldering parts and wire. Available in different wire gauges, not only prevent that curly insulation look but keep heat off parts.

Thin, sharp hook-scribe. Machinist layout tool that I use all the time. Great for fanning out coax braid etc, just used one to 'unshort' the plates on a small spaced tuning cap (rear section SB-401 driver tune)

Needle nose pliers..Klien slim series

Knurl nut driver, Knurl-Tite makes good ones so you don't leave that tell tale "Channel Lock" signature.

Dikes for small close work Xcelite 'Diamond Copaloy' especially the relieved head model.

Now, where can you find this stuff? The two companies below have worked well for us.

Contact East: <http://www.contact-east.com/> Click on 'catalogs' then 'assembly'.

Techni-Tool: <http://www.techni-tool.com/> 'product index' gets to the tool list.

Ed Zeranski This is a private opinion or statement.
home email: ezeran@cris.com

Date: Wed, 03 Dec 1997 18:56:12 -0600
From: Bill Wilson <billo@internetport.net>
To: "boatanchors@theporch.com" <boatanchors@theporch.com>
Subject: F.S. BA related items
Message-ID: <3485FFAB.162FBBEF@internetport.net>

Greetings,

For sale tonight:

Hallicrafters R-47 speaker, nice shape \$28

Hammarlund Speaker ("smaller" than the one that goes with the 180) I think this one is called the S-100, needs some touch up on the paint on the top \$23

J-37 key with leg strap, nice shape \$25

Dow Key... has external contacts, needs a little cleaning on coax connectors but works fine \$12

All items plus shipping.

Thanks,

Bill W4BIZ Jacksonville, Al.

Date: Wed, 3 Dec 1997 19:10:19 +0000
From: "Robert Nickels" <ranickel@mwci.net>
To: boatanchors@theporch.com
Subject: The Twelve Tools Of Boatanchors
Message-ID: <199712040111.TAA28195@subcellar.mwci.net>

Bob Roehrig is right - there are Twelve. And with apologies to the Season, here they are:

Twelve X-lite sockets
Eleven Bristol wrenches
Ten mini screwdrivers
Nine long-nosed pliers
Eight wire strippers
Seven diagonal cutters
Six drill and drill bits
Five Dremel Moto-Tools
Four mini-vises
Three X-acto knives
Two surgical clamps

AND a Ball-Peen Alignment Tool!

73, Bob "Ho Ho Ho!" W9RAN

Date: Wed, 3 Dec 1997 20:26:59 -0500
From: "William C. Robbins" <billrobb@net-link.net>
To: boatanchors@theporch.com
Subject: More manuals
Message-ID: <199712040126.UAA25305@serv01.net-link.net>

I have yet even more manuals to sell. Also, I am waiting for another load of Heath manuals, if you need anything specific.

All prices INCLUDE shipping:

Utica Comm. 650 (copy)	\$5
Galaxy R-530	17
Hammarlund HXL-One	15
Swan Mark 6B Amplifier	12
Tech. Materiel GSB-1	20
Tech. Materiel GPR-90	25
Johnson Viking Invader	20
Johnson Viking 6N2	15
Johnson Viking 6N2 Conv	7
Johnson 6N2 Thunderbolt	17
Johnson Ranger II	17
National HRO-60 (Copy)	10
National NC-400	20
National NC-303	17
National NC-303	17 (No Cover)
National NC-303 Copy	12
National NC-60 Special	5 (Copy)
National HRO-7	10 (Copy)
National NCL-2000 Amp	17

Thanks, Bill

Date: Wed, 03 Dec 1997 20:27:42 -0500
From: Garey Barrell <k4oah@mindspring.com>
To: boatanchors@sco.theporch.com
Subject: Tools, etc.
Message-ID: <3.0.1.32.19971203202742.00695700@pop.mindspring.com>

Just a couple of comments... (That's the worst kind!)

With all the griping about Phillips screwdrivers, (well-earned,) no-one has mentioned a product that I always keep right next to the screwdrivers. This is a product called "Screw Grab". There are several different brands, but all seem to work about the same. This is a liquid carrier with some

"crystals", possibly square?, that REALLY let a screwdriver grab. You can just feel the grit bite when you turn the screwdriver. I've used it to easily remove phillips head screws that have been mangled to the point where you can just barely see the pattern! They also recommend it for slotted, Allen, square, Torx as well as nuts and bolts. After using it for a while, I believe you could twist the head off a screw before it would "strip" out the head.

As for two-wire plugs, I think relying on ANYTHING other than grounding each piece and keeping your equipment in good repair is just asking for trouble. All the DANGERS attributed to two-wire plugs *CAN* also occur with three-wire plugs. Ground wires break, at either end. Wall outlets are miswired, especially in older or "amateur" (no offense!) wiring jobs. Defective / corroded wall outlets cause fires every day. It doesn't happen so often nowadays, but how many time have you seen a three wire plug with the pin broken off or plugged into an "adaptor" to make it fit into a two-wire outlet. The closest I ever came to being electrocuted happened thirty years ago when I unscrewed a glass fuse in a main breaker box and "assumed" that since the ceiling fixture I was going to replace went dark it was ok to work on it. I did the whole job, working with one wire at a time, taped all the connections, (yes, that long ago,) and proceeded to support myself by holding on to the armored BX cable while I used a pair of electricians pliers to twist, stuff and poke all that wire up into the junction box. Guess which pair of pliers managed to find a piece of bare wire "almost" under a piece of tape? Yes, the fuse was in the neutral lead. Since that day, I have NEVER worked on anything over 12 volts without measuring from each wire to each other wire and to ground before beginning work!

Bottom line, two-wire plugs are no more dangerous than you let them be. Maybe THAT's what put Heath, Johnson and all the other companies out of business. They electrocuted too many of their customers.

Oh well, at least the Screw Grab part was interesting....

73,

Garey - K40AH
k4oah@mindspring.com
Atlanta

Date: Thu, 4 Dec 97 01:33:40 UT
From: "Tom Bridgers" <Tarheel6@classic.msn.com>
To: boatanchors@theporch.com
Subject: Ft Myers, Florida Hamfest ... Jan 3-4
Message-ID: <UPMAIL09.199712040136080201@classic.msn.com>

Would appreciate help on getting more info on this hamfest. Will be in the Ft Myers vicinity during that time and would be able to attend. Am curious though about past experiences with the hamfest, where it is located, and whether it is a good source of BA equipment...

Thanks in advance for your help,
-tom KE4RHH

Date: Wed, 03 Dec 1997 20:30:32 +0000
From: "Lawrence R. Ware" <lrware@pipeline.com>
To: boatanchors@sco.theporch.com
Subject: Hand tools, the best & the worst
Message-ID: <3.0.32.19971203203022.00691d94@pop.pipeline.com>

I'll try to keep this short guys, a lot of good information has already been posted...

The best: Snap On, also the most expensive. I have tools 18 years old *still* in *daily* use around here. I made my living with them for years, now they get used for my hobby... :-) Must haves for anyone who works on HP are the #1 and #2 Pozzi-drives. These are almost phillips, but better. I won't go into Pozzi-drives except to point out anytime you see what looks like a phillips head with a sorta cross added (very common on HP high end stuff,) that's a Pozzi-drive. Also very handy for removing stripped regular phillips.

The worst: Anything from the Dollar store, and made in China. Brand that comes to mind as my nomination for the *worst* tolls ever sold: "Globemaster."

-Larry

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lrware@pipeline.com - Orlando, FL -

Date: Wed, 03 Dec 1997 19:50:40 -0600

From: Bill Wilson <billo@internettport.net>
To: ",boatanchors@theporch.com" <boatanchors@theporch.com>
Subject: RE: FS: BA related items
Message-ID: <34860C6F.24A00781@internettport.net>

All items have been spoken for, thanks for the replies.

Happy Holidays,

Bill

Date: Wed, 3 Dec 1997 20:02:21 +0000
From: "Robert Nickels" <ranickel@mwci.net>
To: boatanchors@theporch.com
Subject: About Tools
Message-ID: <199712040203.UAA19507@subcellar.mwci.net>

Hi All,

Whatever your preference in tools, use good ones.
I can't ever remember thinking..."Gee, I wish I had cheaper tools..."

73, Bob W9RAN

Date: Wed, 3 Dec 1997 11:37:35 -0800
From: "W6WUH Larry" <rau@wco.com>
To: "Thomas A. Adams" <103360.2133@compuserve.com>
Cc: "boatanchors" <boatanchors@theporch.com>
Subject: Globe King on 160
Message-ID: <199712031938.LAA08201@shell.wco.com>

The manual clearly states that on 160 300 ohms (not 50) is the MINIMUM impedance the globe king will feed on 160...its 50 on 80 meters and up....

The grid drive requirements and max plate current and efficiency of the 4-400 are different from the 4-250 and especially the 6156... the 4-400 works from all accounts...but if you cant load properly on 160 then it should be no surprise that the less than optimum 4-400 aint happy on that band.

The windom is suggested in the globe king manual... and "most any" antenna fed with 450 ladder line would be another good bet.

Date: Wed, 3 Dec 1997 21:07:11 -0500
From: "Peter Ferrand" <petef@sprynet.com>
To: "Old Tube Radios" <boatanchors@theporch.com>
Subject: FS: Conrac A/V Receiver
Message-ID: <01bd0059\$55187f00\$LocalHost@SPRY409434>

Astute observers may note that I advertised this item some months ago, however the buyer subsequently changed his mind and due to mitigating circumstances it is OK with me. And due to a disk crash the other responses were lost, so here we are again:

This is a Conrac Audio-Video Receiver, model ERL82A/R, which is NOT a TV set in spite of the name.

To quote the manual: The ERL multiple monitor control receiver allows single location control of both picture and sound for any large grouping of local monitors. Designed to permit simplified addition of R.F. channels to a high resolution video closed-circuit installation, the control receiver features a switch on the front panel which changes the signal fed to all monitors from broadcast to CCTV.

What we have here is a professional looking rack mount unit that is 7 1/2" high and weighs 24 pounds, containing a VHF tuner, a UHF tuner, and controls to switch audio and video to a group of video monitors. The controls select either the tuners or baseband CCTV-type inputs.

Unit runs on 120 VAC. VHF input is 75 ohms and UHF is 300 ohms. IF used is 45.75 for pix carrier with intercarrier sound at 4.5 MHz. AGC equipped. The VHF tuner is an iabor-type. Guess you didn't know tuners grow on trees...

Video input is minimum .25 volt peak-to-peak for .25 at each of two isolated outputs. Recommended input is 1 to 2 volts for the same level at the two outputs. Sync negative in and out.

Video input is high impedance bridging, response is 10 MHz +/- 1db closed circuit and 3.75 off-air.

Audio signal 1 volt minimum input with an output cathode follower at .3 v adjustable and local monitoring at 2.5 watts. Response 100-20000 Hz in normal position with filtering provided for speech, bass and treble.

Tube complement includes 12 tubes using 6GM6, 6DJ8, 6AM8, etc.

A nice and rare BA dating from 1963, and includes a manual with big schematic, voltage chart, alignment info and a bit of basement mold at no extra charge.

A number of uses for this, none of which have any relevance to anything I'm doing, so I'll sell this for \$100 plus shipping if needed from Nashua, NH 03060. E-mail or call if you wish at (603)889-1067.

Tnx es 73,
-Pete
WB2QLL
Petef@sprynet.com

Date: Wed, 3 Dec 1997 21:31:26 -0600 (CST)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Dick Dillman <ddillman@igc.apc.org>
Cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: ATT key ??
Message-ID: <Pine.ULT.3.96.971203213019.7461C-100000@admin.aurora.edu>

On Wed, 3 Dec 1997, Dick Dillman wrote:

> Another key, that I always considered a "cable" key, was a double contact
> type - like a SPDT switch - that would reverse the polarity of the circuit
> rather than just opening and closing it. I'm sure that the key collectors
> will know the proper name and application for this type of key but I thought
> it was probably used on cable circuits.

I have one of those here. It's called a "pole changer" key. I believe it was used on duplex circuits.

"No one is listening until you make a mistake"
E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
CIS: Data / Telecom Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Date: Wed, 03 Dec 1997 20:12:44 -0800
From: Edward Zeranski <ejz@nosc.mil>
To: ranickel@mwci.net
Cc: boatanchors@theporch.com
Subject: Re: The Twelve Tools Of Boatanchors

Message-ID: <3.0.1.32.19971203201244.006ed748@marlin.nosc.mil>

>
>AND a Ball-Peen Alignment Tool!
>
>73, Bob "Ho Ho Ho!" W9RAN
>
> Ah, yes! The MK16, mod 0 bashing wand/G force simulator. Great for
'massaging wire harnesses for intermittent probes.

Ed Zeranski This is a private opinion or statement.
home email: ezeran@cris.com

Date: Wed, 03 Dec 1997 21:58:24 +0000
From: "Neal McEwen, K5RW" <nmcewen@metronet.com>
To: broehrig@admin.aurora.edu
Cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: ATT key ??
Message-ID: <3485D600.25@metronet.com>

Bob Roehrig wrote:

>
> > Another key, that I always considered a "cable" key, was a double contact
> > type - like a SPDT switch - that would reverse the polarity of the circuit
> > rather than just opening and closing it. I'm sure that the key collectors
> > will know the proper name and application for this type of key but I thought
> > it was probably used on cable circuits.
>
> I have one of those here. It's called a "pole changer" key. I believe
> it was used on duplex circuits.
>

There is a BIG difference in a cable key and a polechanger key!!!!

A cable key has two levers. When the levers are up, the cable is grounded. Depressing one lever connects the cable to the negative side of the battery. Depressing the other lever connects the cable to the positive side of the battery. One lever is used for dots and the other for dashes. This is needed to overcome the "retardation" effect of the cable. Cable keys date to the 1850s. The first cable connecting Europe and NA was laid in 1858. On cables, the dot and dash are the same

length. The operator
copies by watching the swing, left and right, of a galvanometer or
reading a galvo tape.

Cable operators faded away in the 1950s.

A polechanger key has one lever. It is essentially a SPDT switch.
When the lever is

up one pole of the battery is applied. When the lever is down, the
other pole of the battery is applied. And yes, they were used on
Duplex and Quad telegraph circuits. Most of these keys come from
test boards. AT&T had a lot of these circuits.

Duplex allows two conversation, one in each direction on a single
wire.

Quad allows four conversions, two in each direction on a single
wire. This was mature

technology by the 1880s and gradually phased out after WWII.

--

73 de K5RW, Neal McEwen, at "The Telegraph Office", nmcewen@metronet.com

A WWW Page for Telegraph Key Collectors and Historians

http://fohnix.metronet.com/~nmcewen/tel_off.html

Date: Wed, 03 Dec 1997 21:06:25 EST
From: kb5wwwo@juno.com (George Folse)
To: boatanchors@theporch.com
Subject: Re: What are the 10-most hand tools you use?
Message-ID: <19971203.195555.7783.1.kb5wwwo@juno.com>

Don't forget all 10 fingers, because the 10 tools won't be much help
without them.

George Folse KB5WWO kb5wwwo@juno.com

630 Dolhonde St.

Gretna, La. 70053

504-362-1896 ph/fax

Collector of Heathkit, EF Johnson, and Atwater Kent

AMI#937

Date: Wed, 3 Dec 1997 22:23:32 -0700 (MST)
From: Henry van Cleef <vancleef@netcom.com>
To: ornitz@eastman.com
Cc: boatanchors@theporch.com
Subject: Re: Tube tester advice
Message-ID: <199712040523.VAA08113@netcom5.netcom.com>

I will second what Barry has said about tube testers, and add a few comments of my own.

The vast majority of tube faults don't require a tester to diagnose. An ohmmeter will determine heater continuity, and find any serious shorts. The best "tester" for a tube is the circuit it is supposed to operate in. Generally, a VTVM and some measurements, will show whether a tube is operating properly in its DC conditions. A scope may help here, but scopes are for qualitative measurements, not accurate quantitative measurements (a pitfall that traps a lot of scope users).

A simple emissions tester won't tell you much more than you can determine with an ohmmeter. Most of the "transconductance" testers don't really give much more than a rough indication of AC operation and still don't represent "real world" conditions.

The bridge-type dynamic measurement units are design aids, not maintenance aids. They will give you points for plotting AC performance, based on DC measurements, but they don't try to do AC conditions.

The Tektronix 570 was a specialty curve tracer for dynamically displaying X-Y curves set up as any of a variety of independent vs. dependent variable functions. Actually, the sweep rates are too slow (power line frequency or twice power line frequency). They are primarily design aids, and were a very low volume specialty item when they were new. I worked about 5 years for Tektronix and recall getting a 570 on my bench just to see what it would do, once. After I did that, I put it back in the pool stockroom and never thought about it again. I don't recall ever seeing a tube tester at Tektronix, and if Millen or any of the other places where I did design engineering around tubes had one, it was hidden away and not missed by anyone.

When I was a teenager, I used to make pin money fixing "dogs" that various radio shops sent me. About a third of these problems were tube problems, with tubes that tested "just fine" on a tube tester. The place where a tube tester just plain doesn't smoke out the trouble is with RF oscillators. 6A7, 6A8, 6SA7, 6BE6, 6C4, 955, 9002 are just a few that I've replaced with a known good tube to solve the problem. There are also a variety of balanced circuits, such as scope vertical amplifiers, where all the tests in the world don't tell you what you find out when you put the tube in the circuit---that it upsets the balance. Another area where tube testers could be counted on to sell the customer a new tube were the larger audio amplifier tubes, particularly 6V6, 6F6, and 6L6. The testers would claim the tubes were low, but in the circuit, they worked fine, right up to full output. And a tube tester will never tell you about one fault in

power tubes that a VTVM in-circuit test shows instantaneously:
excessive grid gas current.

I have a Hickock TV3B/U that I picked up a while back, but don't have any schematic or calibration information for it, so have never really tried to use it except to rough-screen some junk tubes out of a group of good ones. A little quicker than finding the shorts with the trusty Simpson meter.

I will note in passing that the Tek 575 Transistor Curve Tracer, which sold in great quantity, and was replaced by later models in the Tek product line, is worth its weight in gold if you are working with semiconductors. That is a completely different ball game than test and characterizing devices for tubes.

Tube testers are great---if you have a repair shop and want to sell lots of tubes. But if you want to fix things, they rank below a Q meter or an impedance bridge on my bench. Both of those instruments are unbeatable for some things, but I never saw a tube tester that would really tell me anything I couldn't find out in a few minutes with the tube in the circuit and scope-and-Simpson diagnostics.

--

=====
Hank van Cleef
=====

Date: Wed, 03 Dec 1997 21:54:46 -0800
From: "Mark J. Blair" <mblair@gruumsh.irv.ca.us>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Good Stuff From Fair Radio
Message-ID: <199712040554.VAA01120@gruumsh.irv.ca.us>

rhs@pacbell.net wrote:

> Found 2 boxes from Fair Radio waiting for me when I got home from work
> today.
[...]
> 73 de Rudy Salomon - KD6NRQ

Speaking of Good Stuff, I also found a box from Fair Radio on my doorstep when I got home today. It contained the SG-677 sweep generator I ordered, with its transit case. It was in pretty good physical shape, and it seems basically operational. I slapped it on the R-392 and the HP 120B scope, and it worked. The sensitivity of the detector seems very low. Maybe it's because I was sampling the 455 kHz

IF out from the R-392 while sweeping at a much higher frequency, or maybe it is just broken, or maybe it's supposed to be that way. I dunno yet. It's RF out isn't very stable, so I won't be using it for a CW signal source, but I still think it'll be a handy tool for keeping my boatanchors glowing after I do a little work on it.

--

Mark J. Blair KE6MYK
e-mail: mblair@gruumsh.irv.ca.us

Date: Wed, 3 Dec 1997 21:15:22 CST
From: jackiv@juno.com (John M Iverson)
To: <boatanchors@sco.theporch.com>
Subject: Meggers
Message-ID: <19971203.211912.3534.3.jackiv@juno.com>

Not the last word, but a "megger" has but one purpose in life and that is to test insulation resistance at an operating voltage. The original Megger by Biddle was a very elegant hand cranked generator with about 500 volts output. this in series with a unique meter to indicate insulation resistance way up in the megohm range, yes it would shock the hell out of you or charge up a cable as a capacitor, which was nasty if not discharged. I still have one to test transformer insulation resistance to other windings or frame. Sort of lets keep from letting the smoke out. he he. jack thanks Jack

Jack Iverson K0EWU jackiv@juno.com RCA QCWA ARCI IEEE,LM ARRL

Date: Thu, 04 Dec 1997 17:31:33 +1100
From: Dean Davidson <ddavidso@metz.une.edu.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Meggers
Message-ID: <3.0.3.32.19971204173133.0072758c@metz.une.edu.au>

At 21:15 03/12/97 CST, John M Iverson wrote:

> [...] yes it would shock the hell out
>of you or charge up a cable as a capacitor, which was nasty if not
>discharged.

To say nothing of the scene with a new apprentice/young engineer and stainless steel urinals and meggers! I'll spare you all the details.

Off topic - sorry Jack

Dean

Date: Wed, 3 Dec 1997 20:35:18 CST
From: jackiv@juno.com (John M Iverson)
To: pilant@seesaw.ENABLE.dec.com
Cc: boatanchors@theporch.com
Subject: Re: Need help w/HP 410B VTVM
Message-ID: <19971203.211912.3534.0.jackiv@juno.com>

HI all.. as to the 410B, the cable to tje probe has a tendency to open one of the shields, this is a multiple shielded cable. I have seen several units with an open heater circuit to the diode .. this may be your problem. the 610 manual has a page to describe the connections to the probe from the bottom plug-in on the front bottom of the unit. It is held by a few screws and is readily removable. the diodes have been listed at several suppliers, but expensive. 73
Jack Iverson K0EWU jackiv@juno.com RCA QCWA ARCI IEEE,LM ARRL

On Wed, 3 Dec 97 12:16:57 EST "L. Mark Pilant - MS:ZK03-4/Y02 DTN:264-1529" <pilant@seesaw.ENABLE.dec.com> writes:
>Frank, as you indicated, the tube is a simple diode, so there isn't
>much to
>go wrong. However, the one thing that would go wrong is the filament.
>
>First thing I'd do is check the connector on the bottom of the 410B to
>make
>sure all the connections to the probe are good. Another check is to
>turn the
>unit on for about 5 to 10 minutes and feel the probe body. If it is
>warm,
>the filament is most likely getting voltage. If it is cool (room
>temperature),
>I suspect the tube or the connector.
>
>If the tube filament is suspect, I'd pull the tube out of the probe
>and use
>a continuity tester (ohm meter or some such) to make sure it was
>intact.
>
>I hope this helps.
>
>73
>
>- Mark N1VQW

>

Date: Wed, 3 Dec 1997 23:15:17 -0800 (PST)
From: John Kolb <jlkolb@cts.com>
To: John M Iverson <jackiv@juno.com>
Cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Need help w/HP 410B VTVM
Message-ID: <Pine.SCO.3.91.971203231140.10481D-100000@sd.cts.com>

On Wed, 3 Dec 1997, John M Iverson wrote:

> HI all.. as to the 410B, the cable to tje probe has a tendency to open
> one of the shields, this is a multiple shielded cable. I have seen

Once had a strange problem in a 410 - it had a DC offset that couldn't be adjusted out. Turned out that the wire between the switch and the grid of the amplifier was laced into a harness, and the insulation was slightly conductive - 100 megohms on a grid can make a bit of offset in a DC coupled amp. Replaced the wire with teflon wire nad left it out of the harness, and the meter worked great.

John kolb KK6IL

Date: Thu, 4 Dec 1997 01:12:58 -0500
From: John Ward <ke2st@frontiernet.net>
To: boatanchors@theporch.com
Subject: RE ATT Key
Message-ID: <v0310280cb0abf909eb37@[209.130.131.13]>

a usual plain straightkey, but with the letters ATT on it.
did ATT really have that much of a telegraph network that they would manufacture their own telegraph keys? and approx when?
tnx hue miller

ATT was still using keys and sounders as recently as 10 years ago. What's more, they used American Morse, not the Continental used for all radio communications. Telegraph lines were used to handle switching orders; if, say a TV broadcaster needed a special network feed for a sports event, and has only one link to ATT, the cable needs to be manually switched from one

net to the other. The order to do this would have been sent to the appropriate ATT station by telegraph. I believe all this is computer controlled today.

John , KE2ST

End of BOATANCHORS Digest 1812

>From ???@??? Fri Dec 05 09:01:46 1997
Message-Id: <199712041900.NAA23409@sco.theporch.com>
Date: Thu, 4 Dec 1997 13:00:00 CST
Subject: BOATANCHORS digest 1813

BOATANCHORS Digest 1813

Topics covered in this issue include:

- 1) Re: Whatsa CX301A
by John Ward <ke2st@frontiernet.net>
- 2) Re: Need help w/HP 410B VTVM
by "JOSE V.GAVILA (EB5AGV/EC5AAU)" <eb5agv@ctv.es>
- 3) Meggers & Mouse Piss Tragedies
by "Don L. Davis" <dxguy@earthlink.net>
- 4) Collins ART-13 Mod Xfmr FS
by arc5@ix.netcom.com
- 5) Astatic Model 332 Mic FS
by arc5@ix.netcom.com
- 6) On Being a Technician...
by arc5@ix.netcom.com
- 7) Why is it that.....
by john <johnmb@mindspring.com>
- 8) Re: Why is it that.....
by William Donzelli <william@ans.net>
- 9) Tube testers
by Avery Comarow <acomarow@USNEWS.COM>
- 10) Hallicrafters R1068 Receiver
by jschwart@ix.netcom.com (John Schwartzberg)
- 11) Re: Why is it that.....
by Jim Lockwood <jmlckwd@mindspring.com>
- 12) new heavy metal: ARC-38
by "Ian Abbott" <ian@gene.COM>
- 13) 24 or 60 V for 12 In
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>

- 14) Mark Beezer
by "Paul Bernhard" <W2TU@classic.msn.com>
- 15) Re: Tube tester advice
by Dennis Gibbs <dgibbs@Rational.Com>
- 16) Re: Why is it that.....
by John Shriver <jas@shiva.com>
- 17) Gonset Comm-IV question
by "Terry O'Laughlin" <terryo@wort-fm.terracom.net>
- 18) Re: Meggers
by Ed Tanton <n4xy@bellsouth.net>
- 19) Re: Tube tester and fingers
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
- 20) Re: Constant V and meggers
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
- 21) Re: Static Charge jokes
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
- 22) Re: ATT key ??
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
- 23) Tools
by "W6WUH Larry" <rau@wco.com>
- 24) Schematic / manual needed
by "Bill Coleman N2BC n2bc@ibm.net" <n2bc@ibm.net>
- 25) Command racks wanted
by BEN NOCK <G4BXD@compuserve.com>
- 26) Books...
by Ken Gordon <keng@uidaho.edu>
- 27) two wire cords
by "W6WUH Larry" <rau@wco.com>
- 28) Re: Gonset Comm-IV question
by gc@cen.com (Gary Chatters)
- 29) Tube tester advice
by Avery Comarow <acomarow@USNEWS.COM>

Date: Thu, 4 Dec 1997 01:02:11 -0500
From: John Ward <ke2st@frontiernet.net>
To: boatanchors@theporch.com
Subject: Re: Whatsa CX301A
Message-ID: <v0310280bb0abf64945a1@[209.130.131.13]>

>As Spencer Petri discourses

>>

>> Pretty bottle by Cunningham but have no data on it.

>> 73 de Pete WA5JCI EM21 "the future will be better tomorrow"

>>

>CX301A? That's an '01A made by Cunningham. Until about 1930, the

>hundreds digit was used as a manufacturer code. Most common are

>Western Electric = 100, RCA = 200, Cunningham = 300. RCA was a patent
>pool until 1928, when they bought Victor Talking Machine Co. "RCA"
>branded stuff was generally made by Westinghouse or GE for sale under
>the RCA patents and name.

>

Cunningham was another RCA brand. A Cunningham 301 is the same as an RCA
201. Both were made by GE. Originally, E. T. Cunningham was the west coast
distributor for RCA tubes.

Western Electric had no connection with either one, nor do their tube
numbers or prefixes correlate in any way.

RCA's purchase of Victor changed nothing, they were still a patent pool.
Victor made the phonographs, Westinghouse and GE made the radios and tubes,
RCA marketed them all as Victor, GE, Westinghouse or RCA products.

John, KE2ST

Date: Thu, 04 Dec 1997 09:40:59 +0100
From: "JOSE V.GAVILA (EB5AGV/EC5AAU)" <eb5agv@ctv.es>
To: "Boatanchors List" <boatanchors@sco.theporch.com>
Subject: Re: Need help w/HP 410B VTVM
Message-ID: <3.0.1.32.19971204094059.006c6c78@192.168.0.1>

Hi gang,

Keeping on topic, if anybody needs an HP-410B 300dpi scanned schematic, I
would gladly e-mail it. Please, let me know.

Best regards.

JOSE

73 EB5AGV / EC5AAU
JOSE V. GAVILA
Ausias March 46, 15
46910 Benetusser - VALENCIA
SPAIN

<http://www.geocities.com/SiliconValley/6992/>
e-mail: eb5agv@ctv.es & eb5agv@amsat.org

Date: Thu, 04 Dec 1997 02:41:03 -0800
From: "Don L. Davis" <dxguy@earthlink.net>
To: boatanchors@theporch.com
Subject: Meggers & Mouse Piss Tragedies
Message-ID: <348688A7.3C30@earthlink.net>

OK: To tie 3 or 4 threads together: In restoring my Collins 16F-1 (big transmitter in 7' cabinet), I noted (strangely, I thought) that all of the chassis undersides & wiring were perfect, and the chassis tops were rusted pretty badly. In addition, there was a ton-o-mouse droppings & nest mat'ls everywhere. Well, the rust is probably from.... yeah, you guessed it - mouse pee. This stuff seems to be everywhere, on wires, insulators, transformers, tube sockets, etc.

How to fix this? All of the recent talk on the net has given me some good starting points for cleaning & disinfecting. I will do this prior to sand-blasting, sanding & painting to keep airborne virus etc. down. Once the guts are cleaned in alcohol & DI water then what? Well I just saw an old megger on ebay the other day (I know a lot of folks don't like ebay, but it's really a WONDERFUL place to buy BAs, test equipment, and parts [and little useless ceramic figurines if you need them]) and got the thing for \$25. So, After cleaning everything & baking it to get all the water out, I'll do the insulation tests to see what would have smoked!

Next step - finding matching wire & how to fit new elctrolytics into the old cans? Thanks to ebay & lots of kind folks @theporch, My tube worries are over. Now the hard part.

73s Don Davis DXGUY@earthlink.net

Date: Thu, 4 Dec 1997 06:02:23 -0600 (CST)
From: arc5@ix.netcom.com
To: boatanchors@sco.theporch.com
Subject: Collins ART-13 Mod Xfmr FS
Message-ID: <1997124620541@>

Collins ART-13 modulation transformer.
Pull. Clean.
Not checked but will refund if bad.
\$20 plus 5 lbs shipping from 78728.
Multi-requests decided by lot or
best sob story.
Please include your zip code in replies.

73 DE Dave Stinson AB5S
arc5@ix.netcom.com

Date: Thu, 4 Dec 1997 06:04:53 -0600 (CST)
From: arc5@ix.netcom.com
To: boatanchors@sco.theporch.com
Subject: Astatic Model 332 Mic FS
Message-ID: <1997124642756334@>

Square Astatic 332 mobile mike.
Excellent looking. Still has
tag attached. \$10 plus 4 lbs
shipping from 78728. Please
include zip code in replies.
Multiple replies decided by lot.

73 DE Dave Stinson AB5S
arc5@ix.netcom.com

Date: Thu, 4 Dec 1997 06:35:42 -0600 (CST)
From: arc5@ix.netcom.com
To: boatanchors@sco.theporch.com
Subject: On Being a Technician...
Message-ID: <199712463519519169@>

There's been a thread on technicians here lately.
Having been a tech all my working life, I can
speak with some knowledge. What a joy-filled
life! Endlessly struggling through trade periodicals
to try and stay abreast of the technological demons
("Training? You mean you weren't BORN knowing how to
fix an entire cell site with a pocket screwdriver and
a voltmeter? What do we pay you \$10 an hour for??),
poverty-level wages and (mis)managers that make you
doubt the value of human life.
Great job choice....ooooh yeah.

My daddy is a great one for advice. I wasn't
the best about listening until I got old, of course.
I'd like to pass along the best advice he ever gave
me, and to which I didn't listen. Perhaps you can

save your children before it's too late.

While speaking about the choice of vocation,
my wise old daddy said:

"Son, there are many excellent jobs out there.
There are two, however, I'd advise against.
First is being a piano-player in a whore house.
Second is being an electronics technician.
But if you get in a real jam and must do
one or the other...
then play the damn piano!"

Wise man, my dear old dad.

73 DE Dave Stinson AB5S
arc5@ix.netcom.com

Date: Thu, 04 Dec 1997 08:58:56 -0500
From: john <johnmb@mindspring.com>
To: boatanchors@theporch.com
Subject: Why is it that.....
Message-ID: <199712041403.JAA19991@camel14.mindspring.com>

....there were a fair number of electrolytics in days gone by,
with 600-650v DC ratings, while today, most electrolytics
top out at 450V?

I seem to remember that the practical limit of oxide dielectric
strength is somewhere in the 600v range, but is that really the reason?
If so, why aren't there any 600v jobs to be found now? Were they
"cheating" back then and series-ing up a couple 300v units to
arrive at the 600-650v range?

Component Engineering-ly yours,
/John

PS: Still looking for someone who is currently using a B&W5100
who can answer a tune up question for me.

+-----

| John Brewer- WB50AU/4
| AMI #24 Vintage Radio Website
| <http://www.mindspring.com/~johnmb/>

+-----

Date: Thu, 4 Dec 1997 09:08:47 -0500 (EST)
From: William Donzelli <william@ans.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Why is it that.....
Message-ID: <Pine.GS0.3.96.971204090713.13974A-100000@titan.purch.ans.net>

>there were a fair number of electrolytics in days gone by,
> with 600-650v DC ratings, while today, most electrolytics
> top out at 450V?

Probably because there is no use for them anymore. The 450 volt limit is good enough for one of the last jobs for high voltage electrolytics - on the front ends of switching power supplies.

William Donzelli
william@ans.net

Date: Thu, 4 Dec 1997 08:14:02 -0600 (CST)
From: Avery Comarow <acomarow@USNEWS.COM>
To: boatanchors@theporch.com
Subject: Tube testers
Message-ID: <199712041414.IAA16433@sco.theporch.com>

I can't seem to divorce myself from tube testers--I have a Hickok and a Jackson, and use them often. But as Barry, Hank, and others have noted, they inspire a false faith that, in turn, can waste many hours while you hunt in frustration for the cause of a problem.

So it was a couple of weeks ago with a Hallicrafters T0 keyer I had just purchased that behaved erratically--the neon indicator on the front panel wouldn't stop flipping even though no sidetone was being generated. The "hold" function would work sometimes and not others. And other strangenesses.

I checked the four 5963 tubes used as multivibrators, all of them the original Hallicrafters-branded bottles--on both tube testers. All checked okay, if a bit marginal. No gas, no leakage.

But after DeOxitizing the switch and pots and replacing all of the paper caps, as well as the diode across the key contacts, to no avail, I figured what the heck, let's try new tubes. And lo, the keyer worked just fine....

Looking back, I should have been tipped off by a positive grid of about +15V on one of the tubes rather than the -30 specified in the manual. That must have been one leaky bottle. But I just assumed the culprit was a leaky cap.

Why didn't the tests turn up anything wrong? Who knows? But I learned a lesson. Was it Hank who noted that Tek's policy when they made tube equipment was that the ONLY proper test was substitution?

I still love my Hickok and Jackson testers, but I know a little more about when to trust them. Like never, totally.

Avery W40GK

Date: Thu, 4 Dec 1997 09:18:22 -0600 (CST)
From: jschwart@ix.netcom.com (John Schwartzberg)
To: boatanchors@theporch.com
Subject: Hallicrafters R1068 Receiver
Message-ID: <199712041518.JAA07692@dfw-ix4.ix.netcom.com>

Hey Anchorites -

Can anyone privde details and description of the aforementioned receiver? I don't recognize the designation.

Thanks,

John
N0GII

Denver, CO
jschwart@ix.netcom.com

Date: Thu, 04 Dec 1997 10:38:05 -0500
From: Jim Lockwood <jmlckwd@mindspring.com>
To: william@ans.net, Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Why is it that.....
Message-ID: <3.0.32.19971204103307.006ae8e8@pop.mindspring.com>

At 09:08 AM 12/4/97 -0500, William Donzelli wrote:

>>there were a fair number of electolytics in days gone by,
>> with 600-650v DC ratings, while today, most electrolytics

>> top out at 450V?

>

>Probably because there is no use for them anymore. The 450 volt limit is
>good enough for one of the last jobs for high voltage electrolytics - on
>the front ends of switching power supplies.

Another current (no play on words intended) use for high voltage electrolytics is on photo flash units. If I remember correctly (not at all likely), the energy stored in one of these is proportional to the square of the charged voltage. So, it would seem to me that smaller, higher output flash units ought to be possible with higher voltage capacitors. If that is true, then there ought to be a market for caps rated higher than 450VDC. Or it seems to me.

73,

Jim - K4CCF
(formerly KM6NK, WA4K00, WN4K00)

Looking for original QSL cards from K4CCF

Date: Thu, 4 Dec 1997 08:01:49 -0800
From: "Ian Abbott" <ian@gene.COM>
To: boatanchors@theporch.com
Subject: new heavy metal: ARC-38
Message-ID: <9712040801.ZM10958@emerald.gene.com>

Hi-

I've just acquired a radio that easily qualifies as a boatanchor- an ARC-38 HF transceiver. I've got a line on a control box and dynamotor/power supply, so other than a rack <which includes the oddball connectors-argh!> and some cables I'm well on my way to nearly 100W AM/CW/or even SSB since this is and RT-594 with the SSB mods!

I've got a "partial repro" manual on it's way from Fair Radio- I've got my fingers crossed that it's worth the \$20.

I _think_ I know where I can find the MT-1415/ARC-38 rack, but if anybody has one lying around I'd *really* like to hear from you.

And more to the point, I'd like to connect with anybody who has *any* experience operating the ARC-38, either in the service or as a hobbyist. Are there "gotchas" I should be on the lookout for, tricks I should know, magic incantations that I might find useful?

The most interesting thing I've noticed as I've nosed around inside

the ARC-38 is the extensive use of sub-miniature tubes- I don't recall the numbers off hand, but there are lots of those ones that are about the diameter of a pencil in addition to "regular" seven and nine pin miniatures. The finals are 6159s, the 12V 6146- heck, my ARC-39 uses those too! Sort of cosmic coincidence, perhaps.

Keep 'em glowing!

IEA

--

Respect opinions stated as such. Question opinions stated as facts.

Ian E. Abbott KC6UPT ian@gene.com <http://www.wenet.net/~planenut>
This is a *personal* message which does *not* represent my employer.

Date: Thr, 04 Dec 1997 16:43:46 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: boatanchors <boatanchors@theporch.com>
Subject: 24 or 60 V for 12 In
Message-ID: <199712041643.QAA14188@punt1.hw.ac.uk>

2 recent queries about 600 VDC capacitors reminded me of this way of getting 24 or 60 or 12000 V DC from 12 V AC without a transformer.

It is quite well known using capacitors for v small currents; but it works using 12 V lead-acid or nickel-cadmium batteries instead of capacitors - at which point it becomes SERIOUSLY DANGEROUS:

Suppose you want to multiply your 12 V AC input by 3: you will need 5 diodes (fewer if you don't require much smoothed current), and 5 12 V rechargeable batteries.

Put the diodes in series and label as follows: BCDEFG is the string of diodes; A and B are the 12 V AC input.

Connect 12 V batteries as follows, - terminal first in each case: AC, BD, CE, DF, EG.

The AC keeps all the batteries charged and you now have a steady 36 V across AG.

(If you only want a small load current, use capacitors instead of

batteries because they can charge up to the PEAK of the supply voltage, which batteries can't. Then you will find nearly 36 V across points A and E, and you save the price of a couple of diodes and one C.)

Note that the diodes and Cs nearest the supply work much harder than the ones nearest the load, so in a mean, tight chain use bigger components at the AC input end.

A good commercial helium-neon laser psu works on this principle. It has a few electrolytic Cs but the majority are paper. It easily reaches 9 kV before the tube strikes, and equally easily maintains the nearly 2 kV needed to keep it running.

When choosing diodes, note that each diode has to withstand a reverse voltage of twice the AC input peak ($2 \times 1.414 \times 12 =$ say 35 V, 40 to be safe.)

Maybe those 600 V wkg Cs under discussion were intended for use in 230 V rms multiplier circuits? Anything rated less would be at risk.

Thinking about the ripple frequency, I have a 20 to 50 MHz synthesised ex-military transceiver; I can see how to use 25 MHz and a full-wave rectifier circuit to get onto 6 metres. I wonder whether a tripler circuit could be used to drive a 4 metre final? I would have to speak quietly as the FM would be $\times 3$ as well! I do not think the UK authorities would encourage me but if the technique works and meets the specs, maybe...

(My class B licence doesn't allow me to divide down to the DC bands, unfortunately. The next thread in this chain of thought is NOT allowed.)

UN de Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Thu, 4 Dec 97 14:30:58 UT
From: "Paul Bernhard" <W2TU@classic.msn.com>
To: boatanchors@theporch.com
Subject: Mark Beezer

Message-ID: <UPMAIL18.199712041702080474@classic.msn.com>

Mark;

Pardon the public e-mail but I'm afraid I don't have your e-mail or other address anywhere. I don't know if that compuserve number is your e-mail address as I don't have that access. The park is closed for the winter and I only have access to radio central and the Sullivans so a tour at this time of year would be limited. It opens again in April around Easter time. I also am a pilot (in past years) so would be interested in seeing you. Thanks for your interest.

Paul Bernhard W2TU/NNNOGNB

w2tu@msn.com

Date: Thu, 4 Dec 1997 12:10:57 -0500
From: Dennis Gibbs <dgibbs@Rational.Com>
To: "'boatanchors@theporch.com'" <boatanchors@theporch.com>
Subject: Re: Tube tester advice
Message-ID: <01BD00AD.AE8780A0@datagen.rational.com>

Greetings all,

Interesting thread on tube testers. One thing that I haven't seen mentioned when using tube testers: To increase the accuracy of tube testing, be sure to perform the complete suite of tests that a given tube tester has to offer. Most tube testers, in addition to testing for emission, or Transconductance, also check for shorts, gas, leakage between elements, etc. It's frequently the case that a tube will test perfectly fine for emission or transconductance, when in fact, it would fail a different test for leakage, or some other parameter.

I have run into this many times. In the past month or two, I have had three different 5814A tubes cause problems in two different pieces of equipment. All three tested perfectly fine for transconductance/emission on both an Eico 667 tube tester, and a TV-2B/U. But they failed miserably on the heater-cathode leakage test.

So it's important to throw all the tests that a tube tester has to offer at a

given tube,
before declaring that that the tube tester in question is wrong.

Dennis

Date: Thu, 4 Dec 1997 12:14:05 -0500
From: John Shriver <jas@shiva.com>
To: johnmb@mindspring.com
Cc: boatanchors@theporch.com
Subject: Re: Why is it that.....
Message-ID: <199712041714.MAA29705@brill.shiva.com>

Some brands of tubular electrolytics still come in 630V ratings. See AES, Digi-Key, and Mouser.

But I thought that the process limit really meant that internally, these 630V caps are two caps in series. That's why it's so hard to get the 475, 500, and 525V units needed in some late tube audio gear, because they were really pushing the limits of one capacitor (not in series).

Even when one does find a new manufacture 525V twist-lok can these days, it's rated at 65C, not 85C like the old ones...

Date: Thu, 04 Dec 1997 11:16:34 -0600
From: "Terry O'Laughlin" <terryo@wort-fm.terracom.net>
To: boatanchors@theporch.com
Subject: Gonset Comm-IV question
Message-ID: <3.0.3.16.19971204111634.3bff2e92@terracom.net>

Anyone ever seen a SIX meter Gonset Communicator IV?

Twenty-five years ago, when I was a VHF-AM fanatic, I had a 6m Comm-III in the car with a Squalo and I always wanted a 6m Comm-IV. Since then I have owned a 2m Comm-IV, and the matching VFO, which had 50/144/220 coverage and an NBFM reactance tube modulator (and when I fired it up on 2m all the Regency HR-2B owners said, "What the hell is that?" and would not engage me in a QSO). I have also seen one of the 220MHz Comm-IVs, but I have never run across a 6m Gonset Comm-IV. Do they exist?

73 Terry O' WB9GVB

Date: Thr, 04 Dec 1997 15:22:20 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: jackiv <jackiv@juno.com>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: Constant V and meggers
Message-ID: <199712041522.PAA12621@punt1.hw.ac.uk>

I used to be surprised by the constancy of the megger V regardless of speed; but maybe the iron was easily saturated.

Remember the Claude Lyons Constant V transformers? Just a saturated transformer. Made someone a fortune though. (Still works incidentally - put 2 3 watt 110/6 V transformers back to back and you get a pretty good constant V, and some hot iron.)

73 de Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Thr, 04 Dec 1997 15:22:26 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: ddavidso <ddavidso@metz.une.edu.au>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: Static Charge jokes
Message-ID: <199712041522.PAA12624@punt1.hw.ac.uk>

On 1997-12-04 ddavidso@metz.une.edu.au said:
dd>At 21:15 03/12/97 CST, John M Iverson wrote:
dd>> [...] yes it would shock the hell out
dd>>of you or charge up a cable as a capacitor, which was nasty if not
dd>>discharged.
dd>To say nothing of the scene with a new apprentice/young engineer and
dd>stainless steel urinals and meggers! I'll spare you all the details.
dd>Off topic - sorry Jack
dd>Dean

I find many (not all) cocktail glasses permit their contents to be

charged from a domestic ioniser as used for (allegedly) freshening the air.

So much for science examiners who think ALL glass insulates.

I suspect most glass is rendered slightly conductive for safety.

Likewise rubber.

73 de Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Thr, 04 Dec 1997 15:22:08 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: broehrig <broehrig@admin.aurora.edu>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: ATT key ??
Message-ID: <199712041522.PAA12613@punt1.hw.ac.uk>

On 1997-12-04 broehrig@admin.aurora.edu said:

br>On Wed, 3 Dec 1997, Dick Dillman wrote:
br>> Another key, that I always considered a "cable" key, was a double
br>>contact type - like a SPDT switch - that would reverse the
br>>polarity of the circuit rather tha just opening and closing it.
br>>I'm sure that the key collectors will know the proper name and
br>>application for this type of key but I thought it was probably
br>used on cable circuits. I have one of those here. It's called a
br>"pole changer" key. I believe it was used on duplex circuits.
br>"No one is listening until you make a mistake"
br>E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
br>CIS: Data / Telecom Aurora University, Aurora, IL
br>630-844-4898 Fax 630-844-5530

Is it a "swap-aerial-and-earth" key, i.e., lift and do a vertical
semicircle? We used to regard them as essential to keep lightning out of
the rig - until lightning struck in spite of! After that I for done did
not bother reversing the switch before going to bed.

One end had a spark gap in the hope of the lightning going that way even if it struck whilst you were operating.

In reality lightning is most reluctant to go round bends and kinks in the conductor, preferring to jump - try convincing architects though, when they wish to hide conductors.

Suggested reason: Lightning current has a fantastic rate of change of current, so back emf at any kink is enough to relaunch it in some other direction.

Do YOU believe that?

There was a fairly recent book on the habits of lightning; edited by Furze of Nottingham I think. Worth asking on The Net.

Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Thu, 4 Dec 1997 10:13:19 -0800
From: "W6WUH Larry" <rau@wco.com>
To: "boatanchors" <boatanchors@theporch.com>
Subject: Tools
Message-ID: <199712041814.KAA09251@shell.wco.com>

here is my hand tool list... quality american brands are Xcelite, Crescent, Gardener Bender, Klien, Snap On, Enders .

Avoid dubious knock offs like radio shack/ bargain box Nut Drivers...I have had my Xcellite set for 35 years...

1. Needle nose pliers.. fine and heavy duty
2. Set of Nut drivers
3. Screwdrivers Slot head..5 sizes 1.) fine work like meters only 2.) small but strong for knobs 3.) 1/4" blade long shank 4.) 1/2" heavy long shank 5.) stubby

.Screwdriver Phillips/Reed and Prince (smallest should have hardened

tips) similar sizes

4. Wire stripper.. not the adjustable kind... but the kind with guage specific grooves (GB GS-60) or the aviation type with the replaceable dies if you have the do-re-me.
5. Side cutters (dykes) large and small... medium maybe part of electricians pliers
6. Allen and splined Wrench sets (best quality you can afford)
7. Soldering gun 150/100 watt weller and thermostat controlled pencil "soldering station"
8. Good selection of tuning tools
9. Slip joint pliers and small adjustable wrenches
10. Selection of cleaning items like tooth brushes, swabs, sponges,scrubbers, rags, soap solution and fresh water in plastic jugs with screw lids (I use cranberry juice bottles).

I am tempted to make Item # 10 the first.. because cleaning a radio before you work on it will uncover/ cure a multitude of ills... and a clean radio is a " good" radio.. worthy of good work.

Besides who want's to get filthy or sneeze them selves senseless working on a radio ?

An Electric drill while not in the top ten must be # 11...and a 1/4" drive ratchet with good set of small sockets has recently proved very worthwhile... especially for stubborn or hard to reach nuts, bolts or screws. (craftsman about \$15).

larry

Date: Thu, 4 Dec 1997 13:17:48 -0800
From: "Bill Coleman N2BC n2bc@ibm.net" <n2bc@ibm.net>
To: boatanchors@theporch.com
Subject: Schematic / manual needed
Message-ID: <BMSMTP8812700240wf2awdc@pop03.ny.us.ibm.net>

Need a schematic and/or manual for a Globe King (not a 500 A/B/C, just Globe King). I've just started peeking inside, There's a pair of V70Ds, 2E26 driver, modulators are PP/Parallel 6L6s. Usual conditions apply, will gladly pay repro & postage. 73, Bill

Date: Thu, 4 Dec 1997 13:13:06 -0500
From: BEN NOCK <G4BXD@compuserve.com>
To: Multiple recipients of l <boatanchors@sco.theporch.com>
Subject: Command racks wanted
Message-ID: <199712041313_MC2-2AB8-51E6@compuserve.com>

I am looking for a pair of racks to set up my command gear. =

FT-220A and FT-226A

I did think I was getting some, someone wrote that he had them and I could have them, but after the initial contact, nothing more was heard. =

So, I'm still looking. Considering the number that must have been made, where are they all and why is it so hard to get a set ? Someone can't be hoarding them all, can he ?

cheers. Ben.G4BXD

Date: Thu, 4 Dec 1997 09:50:50 -0800 (PST)
From: Ken Gordon <keng@uidaho.edu>
To: boatanchors@sco.theporch.com
Subject: Books...
Message-ID: <Pine.BSF.3.95.971204094716.27429F-100000@piobaire.mines.uidaho.edu>

I need to borrow a couple of books, if anyone has them.

They are:

Harpers Electricity Book for Boys, 1903 edition.

Manual for the RAK/RAL series

Manual for the RBL

I HAD the Harpers once. It was in nearly new condition. I loaned it to a new novice and never saw it again.

That will NOT happen from me.

Ken W7EKB

Date: Thu, 4 Dec 1997 10:31:41 -0800
From: "W6WUH Larry" <rau@wco.com>
To: <k4oah@mindspring.com>
Cc: "boatanchors" <boatanchors@theporch.com>
Subject: two wire cords
Message-ID: <199712041832.KAA16203@shell.wco.com>

oh one tiny little thing... with the three wire cord...hv faults to chasis ground will shut the thing down... while an hv fault to ground in a two wire system may not... and your ground rod "antenna ground" may not carry enough current to blow the fuse... making the transmitter one hot pistol indeed ! all it takes to make this happen is to let the centertap of your full wave plate supply float above ground...and bingo..human tree ornament !

Date: Thu, 4 Dec 97 13:54:40 EST
From: gc@cen.com (Gary Chatters)
To: terryo@wort-fm.terracom.net
Cc: boatanchors@theporch.com
Subject: Re: Gonset Comm-IV question
Message-ID: <9712041854.AA06911@cen.com>

>
>Anyone ever seen a SIX meter Gonset Communicator IV?
>

Yes, they do exist. I have seen at least one.

The 2M ones seem to be more common. I have never seen a 220MHz one.

Gary
WA9ZZZ

Date: Thu, 4 Dec 1997 12:57:18 -0600 (CST)
From: Avery Comarow <acomarow@USNEWS.COM>
To: boatanchors@theporch.com
Subject: Tube tester advice
Message-ID: <199712041857.MAA23187@sco.theporch.com>

At 12:15 PM 12/4/97 -0500, dgibbs@Rational.Com wrote:

>Interesting thread on tube testers. One thing that I haven't seen
mentioned when using
>tube testers: To increase the accuracy of tube testing, be sure to perform
the complete
>suite of tests that a given tube tester has to offer. Most tube testers,
in addition to
>testing for emission, or Transconductance, also check for shorts, gas,
leakage between
>elements, etc. It's frequently the case that a tube will test perfectly
fine for emission or
>transconductance, when in fact, it would fail a different test for leakage,
or some other
>parameter.

Dennis's point is a good one. I did indeed perform all of the tests
available to me. And I should have added to my prior post that both the
Jackson and Hickok had just come back from reconditioning and calibration by
a NBST engineer.

Avery W40GK

End of BOATANCHORS Digest 1813

>From ???@??? Fri Dec 05 09:02:37 1997
Message-Id: <199712050428.WAA06944@sco.theporch.com>
Date: Thu, 4 Dec 1997 22:28:57 CST
Subject: BOATANCHORS digest 1814

BOATANCHORS Digest 1814

Topics covered in this issue include:

- 1) Tubed military AC probe: HELP!

- by "JOSE V. GAVILA (EB5AGV/EC5AAU)" <eb5agv@ctv.es>
- 2) Clippard 406 Electronic Voltmeter
by Roger Dillon <rogerjd@gte.net>
 - 3) Re: Tube tester advice
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
 - 4) Re: Tubed military AC probe: HELP!
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
 - 5) FS: Coax Antenna Relay, 115V Coil, DPDT Contacts
by Hal Waite <halwaite@sprintmail.com>
 - 6) Re: Tubed military AC probe: HELP!
by John Michael <MICHAEL@ecs.umass.edu>
 - 7) 650 v caps supply and demand.
by "W6WUH Larry" <rau@wco.com>
 - 8) Re: Tube tester advice
by "P. J. Rovero" <provero@connix.com>
 - 9) King ? Schematic needed.
by "W6WUH Larry" <rau@wco.com>
 - 10) RE: Tubed military AC probe: HELP!
by "L. Mark Pilant - MS:ZK03-4/Y02 DTN:264-1529" <pilant@seesaw.UNET.dec.com>
 - 11) Re: Tube tester advice
by Bob Roehrig <broehrig@admin.aurora.edu>
 - 12) Tube Testers
by Spencer Petri <spetri@e-tex.com>
 - 13) Re: US Navy Tube Numbers
by Dean Davidson <ddavidso@metz.une.edu.au>
 - 14) Ball Peen alignment tool
by "W6WUH Larry" <rau@wco.com>
 - 15) Counterfeiting a black R-390A
by "Terry O'Laughlin" <terryo@wort-fm.terracom.net>
 - 16) FS: Tek scope catalogs; '61, '63, '65, '66
by "Terry O'Laughlin" <terryo@wort-fm.terracom.net>
 - 17) Re: 650 v caps supply and demand.
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
 - 18) Re: Tube Testers-Use for Dud Tubes
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
 - 19) Re: US Navy & other equivs
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
 - 20) Need crystal trimmer for BC-221-T
by Tom Norris <badger@telalink.net>
 - 21) RE: Tube testers...
by Sandy W5TVW <ebjr@worldnet.att.net>
 - 22) Super Pro S meter
by RS2BK <RS2BK@aol.com>
 - 23) Re: Constant V and meggers
by "Lawrence R. Ware" <lrware@pipeline.com>
 - 24) Manual needed - HP 608-D
by Tom Norris <badger@telalink.net>
 - 25) Antenna Help

- by "Lloyd A. Scott, Jr." <wpul1130@concentric.net>
26) Collins 70HS PTO
by David Medley <davemed@worldnet.att.net>
27) 6Mtr Gonset Comm II Diagram
by John England <jengland@mail.tds.net>
28) Re: Counterfeiting a black R-390A
by "William B. Ross" <billross@txdirect.net>
29) Tubes with Navy CRC Numbers
by John England <jengland@mail.tds.net>
30) tube testers
by "W6WUH Larry" <rau@wco.com>
31) Paint Curing
by "Lloyd A. Scott, Jr." <wpul1130@concentric.net>

Date: Thu, 04 Dec 1997 20:04:31 +0100
From: "JOSE V. GAVILA (EB5AGV/EC5AAU)" <eb5agv@ctv.es>
To: "Boatanchors List" <boatanchors@sco.theporch.com>
Subject: Tubed military AC probe: HELP!
Message-ID: <3.0.1.32.19971204200431.006c6298@pop.ctv.es>

Hi gang,

Some days ago I received a nice packet from USA (about 43lbs!), full of BA items :-). One of the items is a NOS AC probe which I thought (when I bought it) was intended for use with an HP-410B VTVM... But it is a completely different one. In an attached label you can read:

TEST PROD
MX-404-9B
USM-116

It is made of metal (except the probe tip support, of course, which is made of white plastic), encapsulated in an elastic black cover and has inside an small diode? tube. Only readings I can look at are 'made in Germany'; there is also the manufacturing date and a two digit number I can't read.

The probe has a three wire (red, black, white) plus braid cable and, as I told before, is completely new and unused...

I wonder if you know of any use for this probe, apart of being decorative ;-).

Thanks!

JOSE

73 EB5AGV / EC5AAU

JOSE V. GAVILA
Ausias March 46, 15
46910 Benetusser - VALENCIA
SPAIN

<http://www.geocities.com/SiliconValley/6992/>
e-mail: eb5agv@ctv.es & eb5agv@amsat.org

Date: Thu, 04 Dec 1997 13:51:36 +0000
From: Roger Dillon <rogerjd@gte.net>
To: boatanchors@theporch.com
Subject: Clippard 406 Electronic Voltmeter
Message-ID: <3486B568.2635ECA5@gte.net>

Anybody familiar with this unit?
I just got one that looks nearky perfect inside, grungy outside.
I would like to know about the RF probe.
It has 3 wires and the connector is the screw on type like used on old
RCA mobile radios.
It's about half the size of the HP410B.
Made between 1941 and 1955. Uses 2 6SN7 tubes.
Ought to look nice on the bench.
BTW, anyone want a 50 year old philco D cell?
It has leaked a little...
TNX and 73
Roger
N5PGH
rogerjd@gte.net

Date: Thr, 04 Dec 1997 19:52:36 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: acomarow <acomarow@USNEWS.COM>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: Tube tester advice
Message-ID: <199712041952.TAA17597@punt1.hw.ac.uk>

Just a quickie: Often my favourite all-round tube test is to see whether
it will oscillate at VHF, using a single-turn tank coil with HT to croc
clip at middle, one end thro' tiny C to grid, other end to anode.

But maybe you wish to single out a tube which DOESN'T oscillate at VHF?

Even so, if your average power (including audio power) tetrode or
pentode will oscillate at say 100 MHz in such a circuit, it must have

good emission, mutual conductance, etc, etc.

UN de Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Thr, 04 Dec 1997 19:52:41 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: eb5agv <eb5agv@ctv.es>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: Tubed military AC probe: HELP!
Message-ID: <199712041952.TAA17600@punt1.hw.ac.uk>

On 1997-12-04 eb5agv@ctv.es said:

eb>Hi gang,
eb>Some days ago I received a nice packet from USA (about 43lbs!),
eb>full of BA items :-). One of the items is a NOS AC probe which I
eb>thought (when I bought it) was intended for use with an HP-410B
eb>VTVM... But it is a completely different one. In an attached label
eb>you can read: TEST PROD
eb>MX-404-9B
eb>USM-116
eb>It is made of metal (except the probe tip support, of course, which
eb>is made of white plastic), encapsulated in an elastic black cover
eb>and has inside an small diode? tube. Only readings I can look at
eb>are 'made in Germany'; there is also the manufacturing date and a
eb>two digit number I can't read. The probe has a three wire (red,
eb>black, white) plus braid cable and, as I told before, is completely
eb>new and unused... I wonder if you know of any use for this probe,
eb>apart of being decorative ;-). Thanks!
eb>JOSE

eb>-----
eb>73 EB5AGV / EC5AAU
eb>JOSE V. GAVILA
eb>Ausias March 46, 15
eb>46910 Benetusser - VALENCIA
eb>SPAIN
eb><http://www.geocities.com/SiliconValley/6992/>
eb>e-mail: eb5agv@ctv.es & eb5agv@amsat.org

Could it be a signal injector probe (needing LT and low HT)?

UN de Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Thu, 04 Dec 1997 12:15:43 -0800
From: Hal Waite <halwaite@sprintmail.com>
To: Boatanchors <boatanchors@theporch.com>
Subject: FS: Coax Antenna Relay, 115V Coil, DPDT Contacts
Message-ID: <34870F6F.4ADE@sprintmail.com>

I have several coax relays manufactured by the Advance Relay and Electric Company. They are of the same design as the Dow-Key Relay but are of superior construction: 10 oz. weight vs. 7 oz weight for the Dow-Key. Connectors are SO-239 (the standard UHF connector), 115VAC coil, and external DPDT relay contacts.

The units appear to be unused; they are in like-new condition.
\$39 + shipping

Hal K3AB/7 Las Vegas

Date: Thu, 04 Dec 1997 15:18:50 -0500
From: John Michael <MICHAEL@ecs.umass.edu>
To: BOATANCHORS@theporch.com
Subject: Re: Tubed military AC probe: HELP!
Message-ID: <01IQS42Y010896VKAU@ECS.UMASS.EDU>

>Some days ago I received a nice packet from USA (about 43lbs!), full of BA
>items :-). One of the items is a NOS AC probe which I thought (when I
>bought it) was intended for use with an HP-410B VTVM... But it is a
>completely different one. In an attached label you can read:

> TEST PROD
> MX-404-9B
> USM-116

Hi Jose,

Yes, I have one of these too. There was a lot of interest in these probes on the BA list a couple of years ago when one of the members incorrectly

stated that the diode in it was identical to the diode in the HP-410B. It isn't. The HP-410B uses either the 6 volt EA-53 diode or the 5 volt 2-01C. The diode in the probe you have is a 6923, which has a 3 volt filament.

The MX-404-9B is a nice looking probe, slimmer than the rather bulky one in the HP-410B. I'm still trying to figure out a way to adapt it to my HP-410C without inflicting any irreversible changes within the meter.

Best wishes,

John Michael michael@ecs.umass.edu

Date: Thu, 4 Dec 1997 12:21:19 -0800
From: "W6WUH Larry" <rau@wco.com>
To: "boatanchors" <boatanchors@theporch.com>
Subject: 650 v caps supply and demand.
Message-ID: <199712042022.MAA29090@shell.wco.com>

650 volt caps are still made...but power supply values are rarely stocked as the demand for them is very low...other (smaller) values are still easy to get ... AES and others.

Nichicon and NTE I think make them...There are still sprague stocks around(ps filter caps).. but tend to get bought up en-masse when found.

the 650 volt prices will astound you for big values like 100 ufd...if you have a TV parts Jobber... look in yellow pages under lectronics parts wholesale...ask if they will order them for you... I replaced the electrolytics in a Multi Elmac power supply a few years ago and mistakenly specified 650 v units instead of 450....and 4 caps cost me \$ 30 bucks ! I shudder to think what it would be now.

Series arrangements of \$ 1.50 caps are a viable alternative to expensive stuff, unless space or glamour is a consideration.

Date: Thu, 4 Dec 1997 15:36:09 -0500 (EST)
From: "P. J. Rovero" <provero@connix.com>
To: Avery Comarow <acomarow@USNEWS.COM>
Cc: Old Tube Radios <boatanchors@theporch.com>

Subject: Re: Tube tester advice

Message-ID: <Pine.BSI.3.95.971204153437.28462A-1000000@comet.connix.com>

At least the Heath IT-21 and Eico 666 *warn* that all the short/leakage tests must be PASSED, not just done, prior to attempting emission/transconductance tests.

P. J. "Josh" Rovero	email: provero@connix.com
Oceanographer	work: rovero@sonalysts.com
Meteorologist	radio: KK1D
Curmudgeon at Large	web: http://www.connix.com/~provero/

Date: Thu, 4 Dec 1997 12:40:41 -0800

From: "W6WUH Larry" <rau@wco.com>

To: "Bill Coleman N2BC n2bc@ibm.net" <n2bc@ibm.net>

Cc: "boatanchors" <boatanchors@theporch.com>

Subject: King ? Schematic needed.

Message-ID: <199712042041.MAA06606@shell.wco.com>

Bill.. don't quote me on this.. but I think you have a Globe King 275....all the 400's I have heard about use TZ40's as the modulators...but the 400 and the 275 share the V-70D's in the Final.. according to Gene Rippen...

Rare bird.

Left Coast Larry

W6WUH

Date: Thu, 4 Dec 97 15:54:18 EST

From: "L. Mark Pilant - MS:ZK03-4/Y02 DTN:264-1529" <pilant@seesaw.ENET.dec.com>

To: boatanchors@theporch.com

Cc: pilant@seesaw.ENET.dec.com

Subject: RE: Tubed military AC probe: HELP!

Message-ID: <9712042054.AA15934@us2rmc.zko.dec.com>

> The diode in the probe you have is a 6923, which has a 3 volt filament.

If the tube is indeed a 6923, then it is also known as an EA-52. I have one of each, in my spares collection, and they appear identical except the EA-52 has wire leads for the filament. However, I don't know about the

actual voltage of the EA-52/6923.

73

- Mark N1VQW

Date: Thu, 4 Dec 1997 15:35:54 -0600 (CST)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Avery Comarow <acomarow@USNEWS.COM>
Cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tube tester advice
Message-ID: <Pine.ULT.3.96.971204153341.4106A-100000@admin.aurora.edu>

> At 12:15 PM 12/4/97 -0500, dgibbs@Rational.Com wrote:
> testing for emission, or Transconductance, also check for shorts, gas,
> leakage between elements, etc.

You should ALWAYS check for shorts first! If there is a short, do NOT
run further tests - the tube ain't good anyway so why risk possible
damage to the meter.

"No one is listening until you make a mistake"
E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
CIS: Data / Telecom Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Date: Thu, 4 Dec 1997 15:56:02 -0600 (CST)
From: Spencer Petri <spetri@e-tex.com>
To: boatanchors@theporch.com
Subject: Tube Testers
Message-ID: <199712042156.PAA27607@sco.theporch.com>

No one has mentioned the best use of these instruments. Sorting through that
bag o' tubes you picked up at the hamfest/tailgate sale. This gets rid of
the shorts, dead emissions and grid emission tubes.

Lots of tubes check good but are no good in the real world, so tube
substitution is the ultimate test.

73 de Pete WA5JCI EM21 "the future will be better tomorrow"

.....
6 Mtr -- WAS #490, WAC CW, DXCC/91 Countries, VUCC #361/626 Grids
.....
2 Mtr -- 36 States -- VUCC #346/183 Grids

Date: Fri, 05 Dec 1997 09:10:58 +1100
From: Dean Davidson <ddavidso@metz.une.edu.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: US Navy Tube Numbers
Message-ID: <3.0.3.32.19971205091058.006f8ebc@metz.une.edu.au>

At 09:56 04/12/97 -0800, Dave Prince wrote:

>Mention has been made in some of the replies of the NSN number of tubes.
>I do have lists of Nato Stock Numbers cross referenced to British CV
>numbers. As the database I'm working on incorporates CV numbering, I
>could include these Nato lists in it. But, are they the same as the US
>NSN's? I'll give a few examples and if someone could check them against
>the NSN numbers and let me know the results, I would be most
>appreciative. I realize the Country code would be different but what
>about the rest?

>From memory, the number is the same irrespective of the country code.

>
>6AH6 5960-99-000-2521 CV2521
>6AK6 5960-99-000-1762 CV1762
>6BA6W 5960-99-000-5037 CV5037
>6D6 5960-99-000-1900 CV1900
>6H6 5960-99-000-1930 CV1930
>

A couple more references from my collection:

5814WA	5960-00-280-4020	
5814A	5960-00-262-0210	
5750/6BE6W	5960-66-015-9005	CV4012
	& 5960-00-246-3002	
5654/6AK5W	5960-99-000-4010	CV4010
	& 5960-00-636-1879	
	& 5960-66-015-9002	

Also, there was mention of the old RN system. A few equivalents:

10E number	CV number	RN	Commercial
10E/8087	CV2946	VU29	ESU150
	CV1029		
10E/140	CV1574	VR65A	SP41
10E/92	CV1091	VR91	EF50

CV1578
10E/11400 CV1054 VR54 EB34/6H6
CV1929
CV1930
CV1931

All the best,
Dean

--

Dean Davidson Web: <http://www.une.edu.au/~psychology/deand.htm>
Dept Psychology Email: <mailto:ddavidso@metz.une.edu.au>
University of New England Phone: +61 2 6773 2585
Armidale NSW 2351 Australia VK2 ZID

Date: Thu, 4 Dec 1997 10:40:13 -0800
From: "W6WUH Larry" <rau@wco.com>
To: <ezeran@cris.com>
Cc: "boatanchors" <boatanchors@theporch.com>
Subject: Ball Peen alignment tool
Message-ID: <199712041841.KAA19711@shell.wco.com>

I favor a good splitting maul for the tougher jobs....used this on a balky Datsun once..it penetrated the hood nicely.. where the ball peen tool would have been ineffectual at best.

Datsun was ham radio equipped BTW.

Left Coast Larry

Date: Thu, 04 Dec 1997 17:20:16 -0600
From: "Terry O'Laughlin" <terryo@wort-fm.terracom.net>
To: boatanchors@theporch.com
Subject: Counterfeiting a black R-390A
Message-ID: <3.0.3.16.19971204172016.3d0f19b6@terracom.net>

I have an R-390A that I cobbled together out of my junk parts and I just unearthed a scratched up front panel with engraved markings. I want to make a spook R-390A out of it for my personal pleasure (to match my CEI and LTV gear) and I don't know what the originals looked like. Are they gloss? flat? wrinkle? I assume the lettering was white. Anyone have any pointers, other than call Rick Mish? (I'm not restoring, I'm cobbling).

73 Terry O' WB9GVB

Date: Thu, 04 Dec 1997 17:15:03 -0600
From: "Terry O'Laughlin" <terryo@wort-fm.terracom.net>
To: boatanchors@theporch.com
Subject: FS: Tek scope catalogs; '61, '63, '65, '66
Message-ID: <3.0.3.16.19971204171503.3d0f1ac0@terracom.net>

I have four old Tektronix oscilloscope catalogs that I'd like to get rid of.
1961, 1963, 1965, and 1966.

\$10 individually or \$25 for all four, plus shipping.

73 Terry O' WB9GVB

Date: Fri, 05 Dec 1997 00:09:24 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: rau <rau@wco.com>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: 650 v caps supply and demand.
Message-ID: <199712050009.AAA19403@punt1.hw.ac.uk>

I've found one or two suppliers of old-stock HV caps in the UK. I'd recommend "Kenzen", Unit 9, 16-20 George St, Balsall Heath, B12 9RG, UK; tel [0]121 446 4346; fax [0]121 440 5323. Often has sales of stock surplus to likely requirements, esp valves. Helpful and knows what his customers are trying to achieve. Contacts the big suppliers and keeps tabs on what they had lots of in stock when it became obsolete, eg valve OP transformers.

Come to think of it, same applies to Chevet Supplies, 157 Dickson Rd, Blackpool, FY1 2EU; tel 01253 751 858; fax 01253 302 979. Who also has many manuals.

For manuals and rare parts also try Tudor Gwilliam-Rees, 15 Meddon St, Bideford, EX39 2EQ; email tudor.gwilliam-rees@virgin.net - produces an interesting tho' variable periodical called Antique Wireless Newsheet.

Does anyone over there want details of Vintage Wireless (and TV) pub'ns and advertisers in the UK? We don't have many.

I don't mind filtering and passing on enquiries for boatanchorists, so

long as you are not in a hurry - I might be away up to 2 weeks at short notice. MIGHT be.

UN de Bill, gm8apx

Bill, aka maestro@cix.co.uk. Tel/fax/msg [44 or 0] 131 336 4502
GM8APX, qthr No 6, eh4 6jy Cave felem No Rectangulars

Net-Tamer V 1.10 - Registered

Date: Fri, 05 Dec 1997 00:09:30 +2400
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: spetri <spetri@e-tex.com>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: Tube Testers-Use for Dud Tubes
Message-ID: <199712050009.AAA19410@punt1.hw.ac.uk>

I found this ILLEGAL use for dud tubes in The Boys' Book of Dangerous Experiments:

If tube had a magnesium getter (therefore well "silvered" on inside of glass), wrap cooking foil over "top" end and earth it. Connect Tesla coil output to all pins together. (Tesla coils are sold nowadays as "Holiday Detectors" for finding invisibly small cracks in vacuum ware, in paintwork on oil pipelines and suchlike - or can easily be made using an ignition coil.)

X-rays will be emitted from top of tube through the Al foil. They recommend x-raying a frozen fish rather than one's self; and wearing a lead apron.

I'm told you can beg x-ray film from airport security. Can this be true?

DON'T try this during the Christmas party.

UN de Bill, gm8apx

Net-Tamer V 1.10 - Registered

Date: Fri, 05 Dec 1997 00:09:36 +2400

From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
To: ddavidso <ddavidso@metz.une.edu.au>
Cc: boatanchors <boatanchors@theporch.com>
Subject: Re: US Navy & other equivs
Message-ID: <199712050009.AAA19413@punt1.hw.ac.uk>

I have a Babani list of 20,000 equivalents; it agrees with your examples but the overlap is maybe under 50%. I don't mind looking things up in it for people who are not in a hurry. The Index offers CV, Commercial, Service, British Army, Royal Navy, RAF, War-Time UK Civilian, and USA Service types. Also 1940s-1960s TV picture tubes with _suggested_ replacements.

General Editor: Clive Sinclair. First pub. 1960.

UN de Bill, gm8apx

Net-Tamer V 1.10 - Registered

Date: Thu, 04 Dec 1997 18:28:55 -0600
From: Tom Norris <badger@telalink.net>
To: (Recipient list suppressed)
Subject: Need crystal trimmer for BC-221-T
Message-ID: <3.0.3.32.19971204182855.006ae7b8@mail1.telalink.net>

Was adjusting the xtal osc on my BC-221-T this afternoon, and the osc trimmer self destructed. Anyone have a junker lying around and would be willing to part with this 50 pf air trimmer??

Thanks

Tom KA4RKT

Please visit The Mil List for info on military communications gear:

[HTTP://www.telalink.net/~badger/millist/mi.html](http://www.telalink.net/~badger/millist/mi.html)

This is a non-comercial endeavor strictly for providing info for those who have a need for it - and intertainment for those who dont....

ANY and ALL Contributions Welcome.

Tom Norris KA4RKT

badger@telalink.net Nashville, Tennessee, USA

Date: Fri, 5 Dec 1997 00:32:12 +0000
From: Sandy W5TVW <ebjr@worldnet.att.net>
To: boatanchors@theporch.com
Subject: RE: Tube testers...
Message-ID: <19971205003205.AAB25777@LOCALNAME>

I see there has been a little discussion on this subject.

From the time I was a snotty nosed kid, hanging around radio shops, asking a jillion questions, there seemed to be two extremes of thought:

1.) Don't believe the tube tester! It will mislead you and tell you lies. Substitution is the ONLY way!

2.) My Sencore/Hickok/B&K "Sooper Dooper Toober" will tell all! I wouldn't have spent \$699.99 for something that would not be a crystal ball. This thing will practically repair the radio for you!

There is some truth in both the above, but the radio technician will continue to have to use his experience and good sense in the INTERPRETATION of what the tester tells you!

"Shorts" tests are essential, and most checkers perform this test. Some do "Gas" tests and some don't. More on this later. The "Quality" tests vary with the type of checker, as does the reliability of the "Quality" check.

The "Quality" checks of tube testers fall into two basic categories: "Emission" and "Mutual Conductance" tests. Many of the older checkers, most of the Heathkits, EICO, Jackson, Simpson and Triplett instruments fall into the category of "emission" checkers.. The Hickok checker and their clones like the military TV-7 and TV-2 are nearly all "Mutual Conductance" checkers. Both types will let you weed out bad tubes, but in my years at the game, the TV-2, TV-7 and the Hickok checkers are generally more reliable. Yes, it IS possible to have a tube that gives an excellent Gm check and still raise hell in your receiver! BUT having a tube checker is MILES ahead of NOT having one, even a simple one!

The "Gas" test that most have sometimes will tell you about why your favorite "sweep tube" RF power amplifier is not working in spite of good "Gm" readings! Again, this must be used and believed with caution.

I own TWO tube checkers at present, the Hickok 539C (which is very

similar to the military TV-2) and a Hickok 800A (which is similar to the TV-7). I prefer the 539C and trust it more. I have, in the past while doing duty in the Air Force, used the TV-2 and TV-7 as well as the old I-177 checkers. This was during the days before everything went solid state. We were tenants on a Navy base , so we had to be careful. In the Air Force a TV-2 is a tube tester. In the Navy a TV-2 is an airplane!

Transmitting tubes like the 807, 811A, 866A etc. CAN be tested, but I'd take the "test" with a grain of salt. The only way to really see if they will perform is to "test" them in the gear they are installed in. The same applies to some tubes used in VHF/UHF radio receivers. Whatever "test" the checker performs will be using DC or 60 Hz. AC signals, so be cautious here.

My 2-1/2 cents worth.

73,

E. V. Sandy Blaize, W5TVW

"Boat Anchors collected, restored, repaired, traded and used!"
417 Ridgewood Drive
Metairie, LA., 70001

860 Hartley 'ECO' under construction*
*** Looking for a TRC-10 transceiver *****
*** Looking for an RAL receiver *****

Date: Thu, 4 Dec 1997 19:25:09 EST
From: RS2BK <RS2BK@aol.com>
To: boatanchors@theporch.com
Subject: Super Pro S meter
Message-ID: <25c10d73.348749e7@aol.com>

Fellow boat peoples, I am in the midst of a Hammurlund Super Pro restoration and I am looking for the S meter and the lamp assembly (the assembly plugs into the rear of the meter). Any meter from the SP 200 series or the BC779 series (BC1004 also).

tnx,, Jim, w9ud

Date: Thu, 04 Dec 1997 19:34:14 +0000
From: "Lawrence R. Ware" <lrware@pipeline.com>
To: boatanchors@sco.theporch.com

Subject: Re: Constant V and meggers

Message-ID: <3.0.32.19971204191549.006e05b4@pop.pipeline.com>

At 15:22 12/04/1997 +2400, you wrote:

>I used to be surprised by the constancy of the megger V regardless of
>speed; but maybe the iron was easily saturated.

I forget the exact wiring in these, (been far too long, :-)
but Biddle Megger (it's a brand name) use *two* windings in the meter
movement. As I recall, one senses applied voltage and the other current.
Thus within a wide range of values, the output from the hand cranked
gen. is compensated for.

-Larry Ware
lrware@pipeline.com
Orlando, Florida

Date: Thu, 04 Dec 1997 18:59:00 -0600
From: Tom Norris <badger@telalink.net>
To: (Recipient list suppressed)
Subject: Manual needed - HP 608-D
Message-ID: <3.0.3.32.19971204185900.006fbdcc@mail1.telalink.net>

The title pretty much says it all. Got my mitts on
on of these beasties a while back, and now I may
have some time to fool with it. It needs some work,
which will be much easier with a manual. :-)
Anyone have a source?

Thanks

Tom

Date: Thu, 04 Dec 1997 17:59:47 -0800
From: "Lloyd A. Scott, Jr." <wpul11130@concentric.net>
To: boatanchors@theporch.com
Subject: Antenna Help
Message-ID: <34876013.7389@concentric.net>

Greetings All: Just received via UPS tonight a antenna, and need some

help
repairing it. The top vertical and possibly something that secures the
vertical
in place is missing. Its a UHF discone with the following tag:
Antenna AT-197/GR
S/N 4084 AF 33(038)-6135
Collins Radio Company
I would like to find a manual and picture of the antenna to see just
what is
missing. Any help will be appreciated.
73's
Lloyd

Date: Thu, 04 Dec 1997 19:18:07 -0700
From: David Medley <davemed@worldnet.att.net>
To: boatanchors@theporch.com
Subject: Collins 70HS PTO
Message-ID: <3.0.3.32.19971204191807.0071e3f8@postoffice.worldnet.att.net>

Among my junk I have a Collins PTO 70 HS serial 2539. I have no idea what it
belongs to but if anyone needs it please e-mail me.

Regards

David Medley KI6QE/7 aka VK2IMJ

1020 West Oleta Drive

Tucson AZ 85704

<bigger><bigger>Source of R390/390A hard to find parts and special
</bigger>services.

</bigger>

Date: Thu, 4 Dec 1997 21:01:19 -0600 (CST)
From: John England <jengland@mail.tds.net>
To: boatanchors@theporch.com
Subject: 6Mtr Gonset Comm II Diagram
Message-ID: <199712050301.VAA25488@mail.tds.net>

Hi Guys:

I'm looking for a diagram of a six meter Communicator II. An old yellar Civil Defense unit. I especially need the power supply diagram. Any help would be greatly appreciated. Happy to pay copying and mail expenses.

73 and thanks in advance. de John K4RIG

Date: Thu, 04 Dec 1997 22:30:13 +0900
From: "William B. Ross" <billross@txdirect.net>
To: terryo@wort-fm.terracom.net
Cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Counterfeiting a black R-390A
Message-ID: <3486B065.A706BC2C@txdirect.net>

I have visited numerous ASA receiver sites during my military career, both in Germany and in the Far East. I never saw any R390 or R390A any color than the flat grey color that varied a little in shade between manufacturers.

Bill Ross
K5LLK

Date: Thu, 4 Dec 1997 21:30:50 -0600 (CST)
From: John England <jengland@mail.tds.net>
To: boatanchors@theporch.com
Subject: Tubes with Navy CRC Numbers
Message-ID: <199712050330.VAA07374@mail.tds.net>

While going through some tubes tonite I ran across a new RCA RADIOTRON tube with the following number CRC 38233 looks like a 7 pin tube with probably grid connection on top. On the side of the box it says Mfg'd for Western Elec. Co Contract NOs 84530 and dated 21 April 1941. Anyone got a idea what the generic number is for this tube. Obviously I dont have the Tube Lore book either. Thanks for your help.

John K4RIG

Date: Thu, 4 Dec 1997 11:20:00 -0800
From: "W6WUH Larry" <rau@wco.com>

To: <vancleef@netcom.com>
Cc: "boatanchors" <boatanchors@theporch.com>
Subject: tube testers
Message-ID: <199712041921.LAA05216@shell.wco.com>

hank I yeild to your design experience... however.. what we do in the repair and radio overhaul field is a lot different than what designers do...thats why when the designers get done working from the tube charactoristics charts and all the rest.. some poor technician has to make it work.

We agree.. that some circuit conditions are not duplicated in tube tester circuitry.. rf osc/amps being prime among them....

never the less...I get more and better (eg consistant/ comparable/reliable) information faster with my tube tester than you can by the methods described....Gm is well measured against the standard for the tube... and contrary to what you said.. gas is readily observed.rebias the tube and look for excessive gain.. it's right in the manual....though admittedly some tubes wont gas untill run for hours, or unless they see higher voltages than exist in the tube tester. It's an imperfect world.

Now there is ART / operator experience involved....and the more you use a good tester like a hickock 500/600/6000.. the more you will understand it's limitations... and it abilities.

Your argument that one was not a part of a design facility is a specious argument....neither are snake anti venom kits.. .. but that says nothing about whether they are useful or work....

The selling tubes deal might apply to hoaky "emissions" typedrug store testers. but nowadays... we want to conserve tube resources... not sell them !

I want my customer to keep as many of his old tubes as he can with out having the thing comeback on warranty... and i want to offer a used tube at a bargian price just as long as I can gurantee it... and without my tube test i could not do that...with it I have Gm, emission(life test) gas test, shorts info... I can vary the bias on the tube...and compare that with both the published data on the tube... and with what i have seen on my tester when a hundred other tubes of the same type were tested, I have the basis to make an informed decision about a tube.

All this is done with out makeshift goofyness.. like holding test leads to minature tube pins and trying to read base charts at the same time...or guess about amplification factor or filament life/emission.

I routinely use a laundry marker to write tested Gm over New Gm.. and note emission as new, good or Lo E.

Occasionally I find a tube which is bad despite all this...and a substitution will check that...but at least in the home sets with shortwave I usually see..this is rare occurrence...perhaps because I do test thoroughly, and assume nothing.

Now.. there are sockets made to test circuit conditions..plug them in. and plug the tube into that.. and measure away...not so sure they would be real swift for HF oscillators, but they are out there... waiting.

And finally... the tubemakers themselves routinely tested tubes from each production run...maybe they were on to something ? While millen and techtronics could afford to grab new tube stock like gumdrops.

larry

Date: Thu, 04 Dec 1997 20:32:43 -0800
From: "Lloyd A. Scott, Jr." <wpul11130@concentric.net>
To: boatanchors@theporch.com
Subject: Paint Curing
Message-ID: <348783EB.6AD8@concentric.net>

Greetings again: I plan to paint a cover for a Mil receiver and want to heat cure it in the kitchen oven. I think there was a discussion sometime back reference this. Any suggestions as to the paint to use, temp of the oven and length of time to leave it in the oven?
Many thanks in advance
Lloyd

End of BOATANCHORS Digest 1814
